

1968

SIDNEY TOWNSHIP
(Batawa)

**water pollution
control plant**

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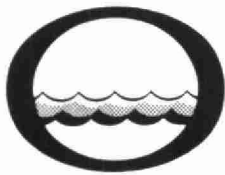
Division of Plant Operations

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Water management in Ontario

Ontario
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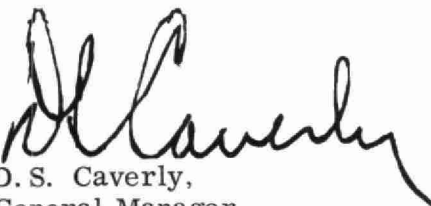
135 St. Clair Ave. W.
Toronto 7
Ontario

We are pleased to present you with the Operating Summary for the water pollution control facilities operated for you during 1968.

Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.


D. S. Caverly,
General Manager.


D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

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SIDNEY TOWNSHIP (BATAWA)

water pollution control plant

operated for

THE TOWNSHIP OF SIDNEY (BATAWA)

by the

ONTARIO WATER RESOURCES COMMISSION

1968 ANNUAL OPERATING SUMMARY

FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

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'68 REVIEW

Operating costs were \$7,563.26, an increase of \$249.73 over the previous year, but \$556.74 less than the 1968 budget of \$8,120.00. The operating costs were lower because no sludge was hauled in 1968. The unit cost of treating one million gallons was \$84.06, a decrease from the unit cost of \$92.61 in 1967.

The estimated average daily flow to the plant was 250,000 gallons. This was twice the design capacity of 125,000 gpd. Flows were estimated by taking an instantaneous reading at the Parshall flume at about 8:00 a.m. each day. In December, a recording flow meter was installed.

The average BOD and suspended solids strengths of the raw sewage were 62 mg/l and 69 mg/l. The average strengths of both BOD and suspended solids in the effluent were 10 mg/l, while the reductions of BOD and suspended solids were 84 percent and 86 percent. The plant effluent concentrations were well within OWRC objectives.

Tenders were called for the removal of digested sludge from the plant, and subsequently a contract was awarded to Zebedee Trucking at a price of \$1 per cubic yard.

There were no major operating problems at the plant in 1968.

PROJECT COSTS

NET CAPITAL COST (Final)	\$162,152.89
DEDUCT - Portion Financed by CMHC-(Final)	<u>109,605.08</u>
Long Term Debt to OWRC	\$ <u>52,547.81</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	\$ <u>11,199.83</u>
Net Operating	\$ 7,563.26
Debt Retirement	1,906.00
Reserve	937.13
Interest Charged	2,963.33
TOTAL	\$ <u>13,369.77</u>

RESERVE ACCOUNT

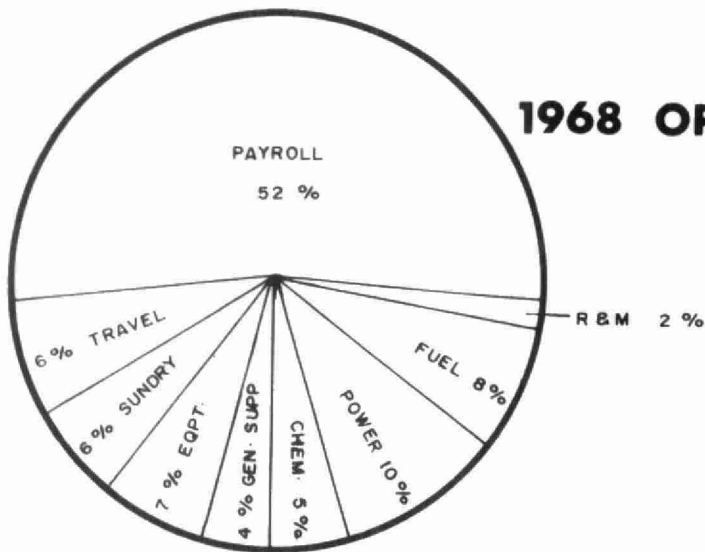
Balance at January 1, 1968	\$ 4,299.47
Deposited by Municipality	937.13
Interest Earned	<u>239.58</u>
	\$ 5,476.18
Less Expenditures	<u>1,198.00</u>
Balance at December 31, 1968	\$ <u>4,278.18</u>

Monthly Operating Costs

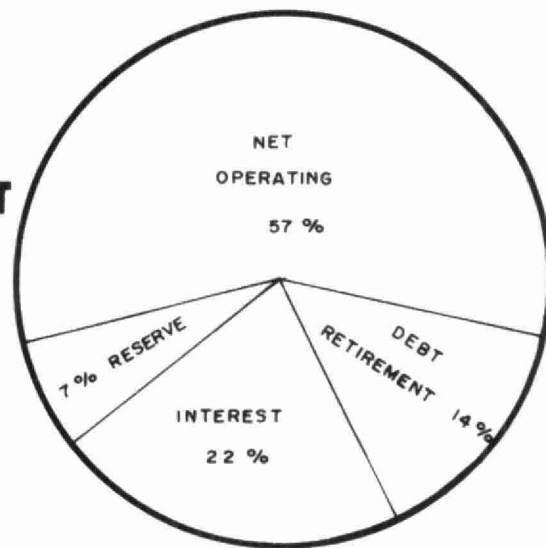
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAY ROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY	WATER	TRAVEL
JAN	449.70	113.83	207.61	-	57.55	-	-	-	59.00	11.71	-	-
FEB	759.92	312.24	191.57	86.71	65.65	-	61.68	-	-	-	-	42.07
MAR	1206.31	920.42	-	83.52	66.32	-	13.95	-	36.40	34.81	-	50.89
APRIL	310.56	(96.49)	-	86.49	62.27	123.64	44.83	19.43	43.70	11.71	-	14.98
MAY	792.05	561.43	-	71.42	70.37	-	28.61	-	-	11.71	-	48.51
JUNE	647.80	502.08	-	49.53	65.65	-	9.75	-	-	-	-	20.79
JULY	1025.85	679.53	-	-	58.22	123.64	27.92	50.00	-	68.97	-	17.57
AUG	908.31	807.99	-	-	-	-	17.82	-	-	11.71	-	70.84
SEPT	540.80	325.74	-	103.55	-	-	8.12	35.04	-	16.71	-	51.59
OCT	749.16	279.09	-	41.06	183.09	-	26.03	181.07	-	23.03	-	15.40
NOV	827.01	306.31	-	37.10	71.37	123.64	41.39	-	-	208.05	-	49.05
DEC	(654.21)	(1127.30)	-	44.03	59.90	-	19.50	226.85	-	16.71	-	106.10
TOTAL	7563.26	3584.87	399.18	603.41	760.39	370.92	289.70	512.39	139.10	415.51	-	487.79

BRACKETED INDICATE CREDIT

1968 OPERATING COSTS



TOTAL ANNUAL COST



Yearly Operating Costs

YEAR	M.G.TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1964	* 95.59	\$6,024.26	\$ 63.02	10 cents
1965	80.53	7,877.10	95.33	26 cents
1966	87.42	6,812.13	101.04	15 cents
1967	78.97	7,313.53	92.61	13 cents
1968	89.97	7,563.26	84.06	16 cents

* Prorated on estimated flow October - December

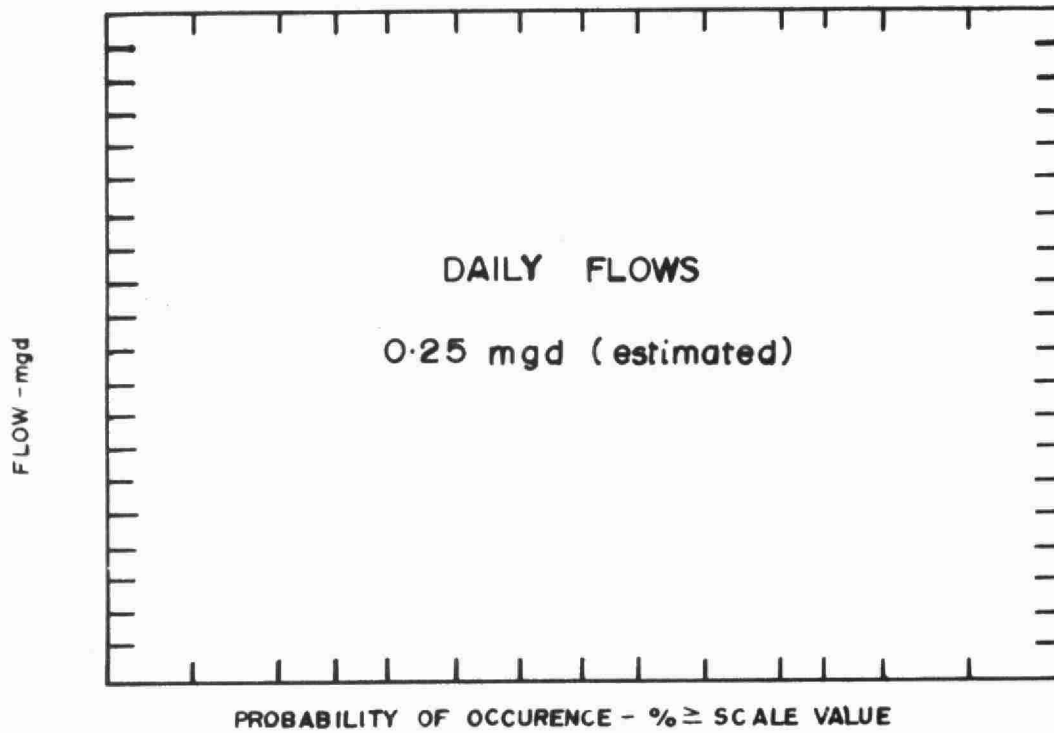
PLANT FLOWS and CHLORINATION

MONTH	TOTAL FLOW mg	AVERAGE DAILY FLOW mg	MAXIMUM DAILY FLOW mg	MINIMUM DAILY FLOW mg	CHLORINE USED lbs.	DOSAGE mg/l
JAN	6.80	.22	.25	.14	* 8	3.6
FEB	7.22	.25	.25	.22	211	2.9
MAR	7.75	.25	.25	.25	236	3.0
APR	7.50	.25	.25	.25	229	3.0
MAY	7.57	.24	.25	.21	249	3.3
JUN	7.46	.25	.25	.23	255	3.4
JUL	7.72	.25	.25	.24	249	3.2
AUG	7.75	.25	.25	.25	213	2.8
SEPT	7.28	.24	.25	.24	184	2.5
OCT	7.68	.25	.25	.24	260	3.4
NOV	7.49	.25	.25	.23	223	3.0
DEC	7.75	.25	.25	.25	250	3.2
TOTAL	89.97	-	-	-	2567	-
AVERAGE	-	.25	-	-	214	2.8

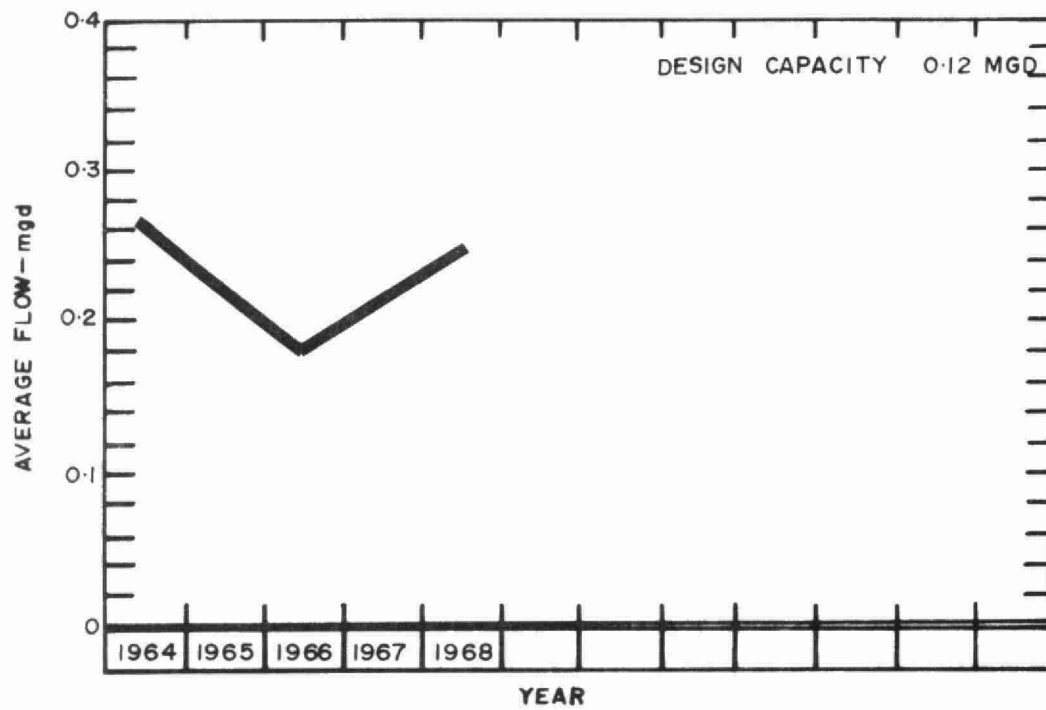
* One day's chlorination

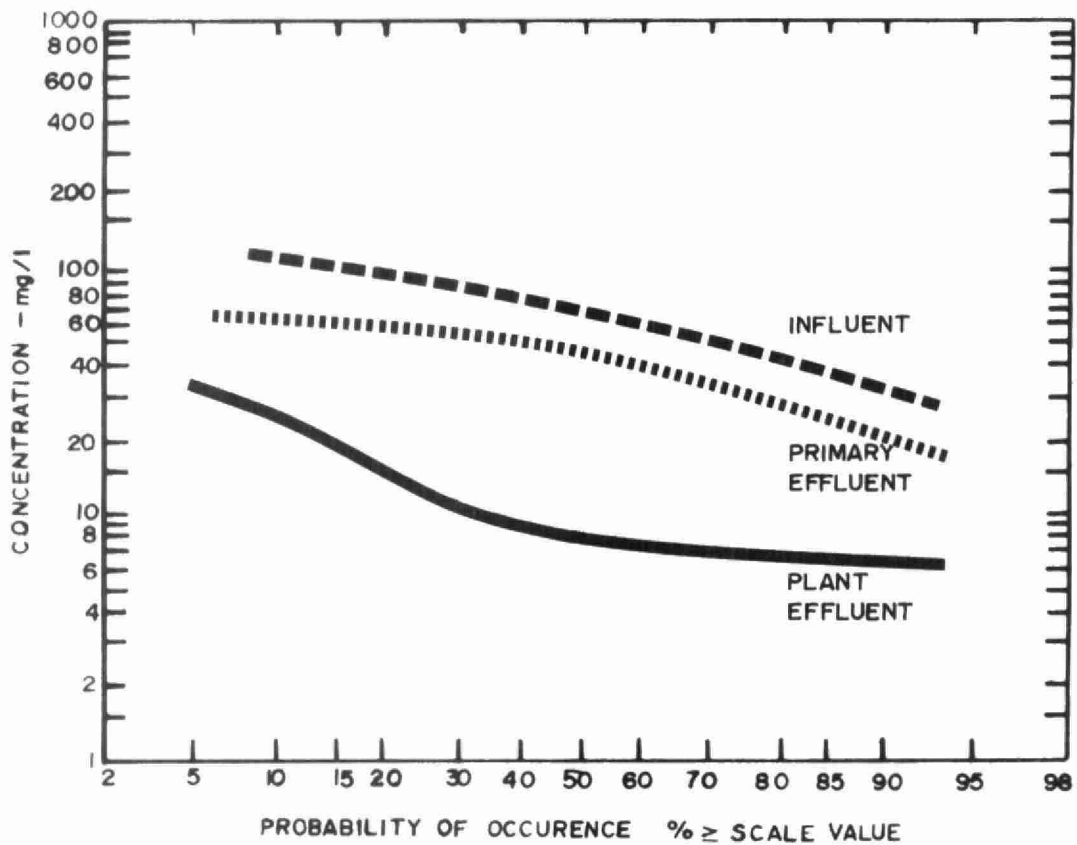
COMMENTS

The effluent was chlorinated year-round. It required a total of 2,567 pounds of chlorine to maintain a chlorine residual in the effluent of 0.5 mg/l after a 15-minute contact period.

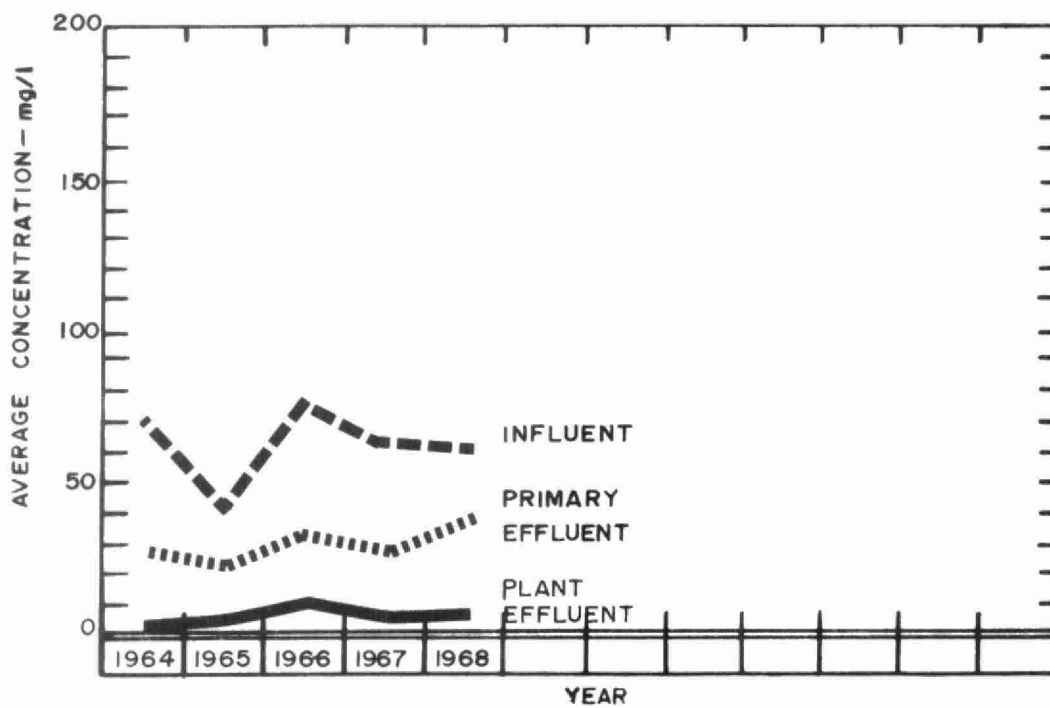


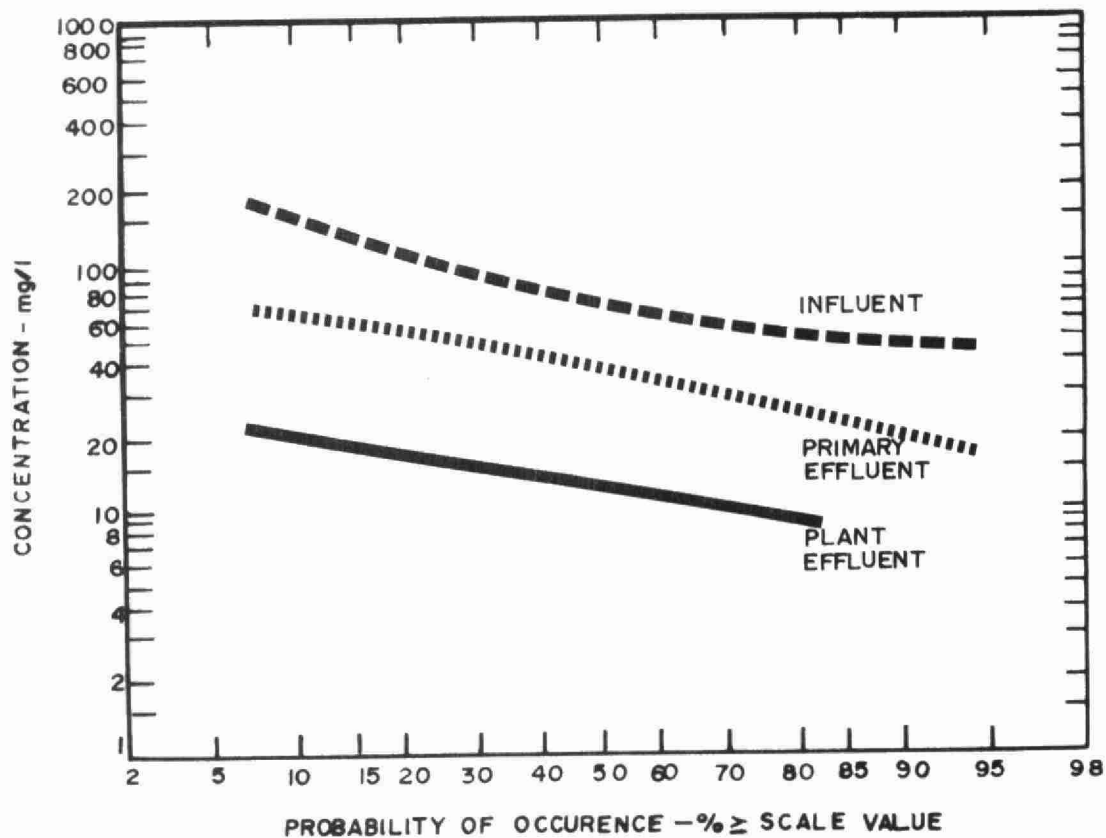
FL O W S



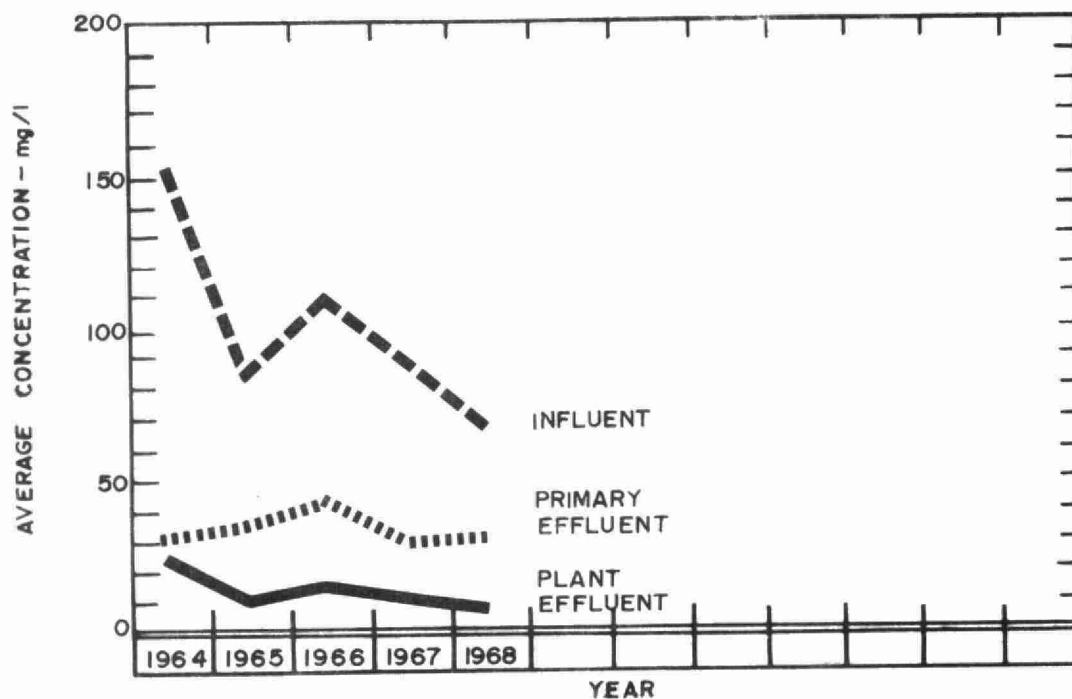


BIOCHEMICAL OXYGEN DEMAND





SUSPENDED SOLIDS



PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				GRIT
	INF CONC ^N mg/l	EFF CONC ^N mg/l	RED ^N %	REMOVAL 10 ³ lb	INF CONC ^N mg/l	EFF CONC ^N mg/l	RED ^N %	REMOVAL 10 ³ lb	REMOVAL ft ³
JAN	78	21	73	3.88	46	19	59	1.84	0
FEB	74	6	92	4.94	47	5	89	3.04	0
MAR	110	8	93	7.94	119	5	96	8.04	6
APR	78	5	94	5.48	44	6	86	2.84	8
MAY	76	27	64	3.70	118	17	86	7.64	0
JUN	45	8	83	2.78	57	12	79	3.36	0
JULY	30	7	77	1.78	41	9	78	2.47	0
AUG	17	3	81	1.07	37	7	81	2.33	0
SEPT	39	5	87	2.46	41	7	83	2.48	5
OCT	54	7	87	3.62	50	6	88	3.38	5
NOV	95	12	87	6.22	172	11	94	12.06	3
DEC	45	8	82	2.87	50	10	80	3.10	0
TOTAL	741	117	-	46.74	822	114	-	53.38	27
AVERAGE	62	10	84	3.90	69	10	86	4.44	2.3

COMMENTS

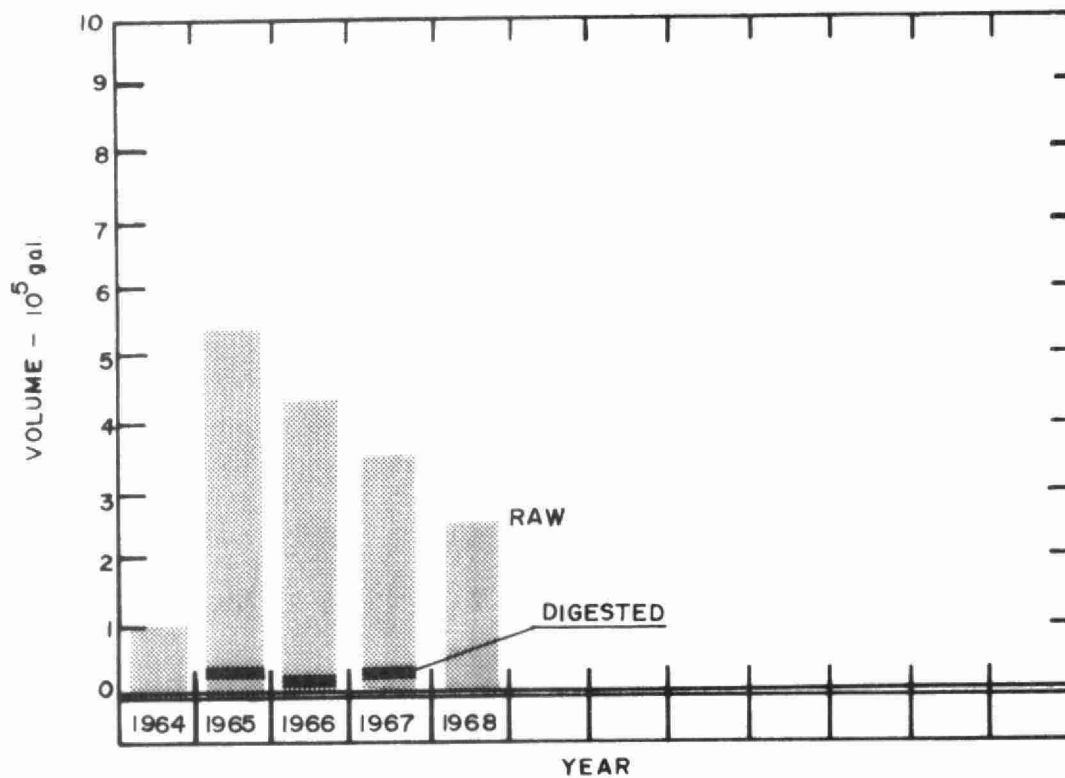
The average concentration of BOD and suspended solids in the plant influent were 62 and 69 mg/l respectively. The plant effluent BOD and suspended solids concentrations were 10 and 10 mg/l respectively. This resulted in a reduction in BOD and suspended solids of 84 and 86 percent respectively. The results were obtained from composite samples gathered at the project and submitted to the Commission for analysis. The BOD and suspended solids concentrations of the plant effluent were well within OWRC objectives.

AERATION

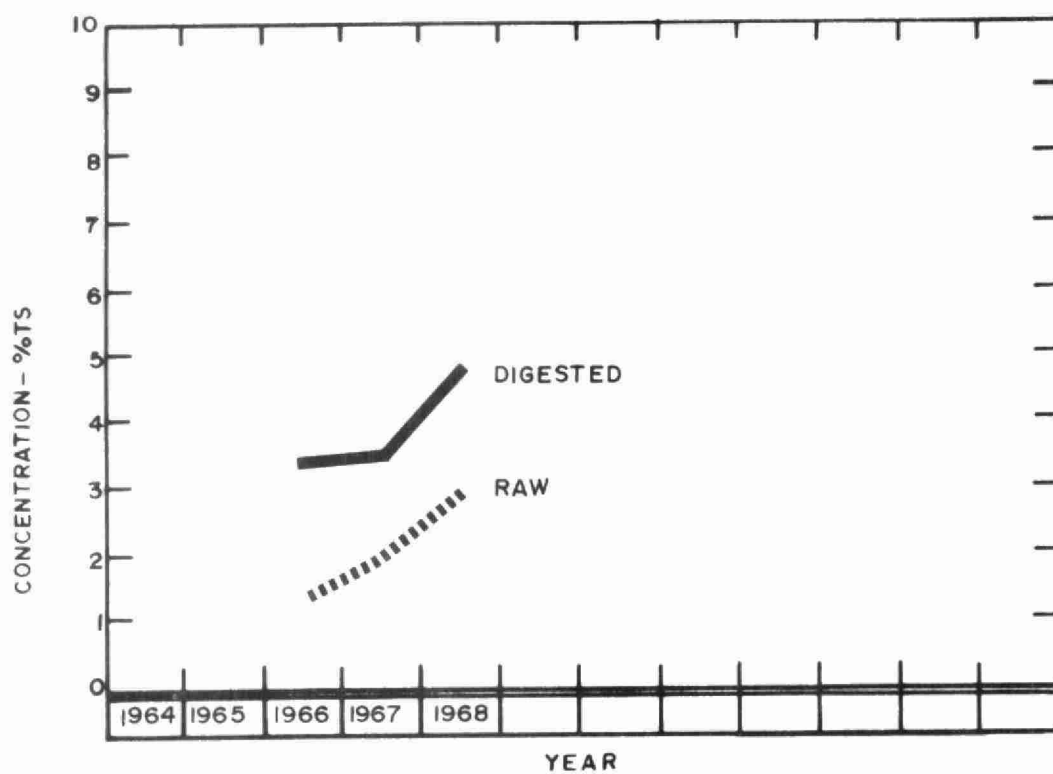
MONTH	AVERAGE FLOW mgd	PRIMARY EFF		SECONDARY EFF		MLSS CONC ^N mg/l	F/M $\left(\frac{\text{lb BOD}}{\text{lb MLSS}}\right)$	AIR USED $\left(\frac{1000 \text{ ft}^3}{\text{lb BOD}}\right)$ REMOVED	WASTE SLUDGE lb
		BOD CONC ^N mg/l	SS CONC ^N mg/l	BOD CONC ^N mg/l	SS CONC ^N mg/l				
JAN	.22	57	36	21	19	1,870	0.17	-	-
FEB	.25	37	26	6	5	1,860	0.13	-	-
MAR	.25	64	46	8	5	1,630	0.26	-	-
APRIL	.25	54	59	5	6	1,700	0.21	-	-
MAY	.24	41	16	27	17	1,600	0.16	-	-
JUN	.25	48	18	8	12	1,810	0.18	-	-
JUL	.25	35	36	7	9	1,740	0.14	-	-
AUG	.25	11	12	3	7	1,650	0.05	-	-
SEPT	.24	26	38	5	7	1,690	0.10	-	-
OCT	.25	17	15	7	6	1,650	0.07	-	-
NOV	.25	49	32	12	11	1,460	0.22	-	-
DEC	.25	35	50	8	10	1,680	0.14	-	-
TOTAL	-	-	-	-	-	-	-	-	-
AVERAGE	.25	40	32	10	10	1,690	0.15	-	-

COMMENTS

The average concentration of mixed liquor suspended solids in the aeration tank was 1690 mg/l. The loading on the aeration tank averaged 15 lbs. of BOD/100 lbs. of mixed liquor suspended solids. This is a rather low loading and is a result of the very dilute raw sewage.



DIGESTION



SLUDGE DIGESTION and DISPOSAL

MONTH	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT		SLUDGE DISPOSAL	
	VOLUME 10 ⁴ gal	T. S. %	V. S. %	VOLUME gal	T. S. %	V. S. %	VOLUME 10 ⁴ gal	T. S. %	LIQUID yd ³	DEWATERED yd ³
JAN	2.04	-	-	0	-	-	-	-	0	0
FEB	1.89	4.0	-	0	5.1	-	-	-	0	0
MAR	2.09	-	-	0	-	-	-	-	0	0
APR	2.12	1.6	-	0	5.2	-	-	-	0	0
MAY	1.85	-	-	0	-	-	-	-	0	0
JUN	2.46	-	-	0	-	-	-	-	0	0
JUL	2.31	-	-	0	-	-	1.29	-	0	0
AUG	2.28	5.4	-	0	4.3	-	2.28	-	0	0
SEPT	2.40	-	-	0	-	-	2.40	.1	0	0
OCT	2.64	1.6	-	0	3.8	-	2.64	.1	0	0
NOV	2.49	2.4	-	0	6.0	-	2.49	.1	0	0
DEC	2.28	-	-	0	-	-	2.28	-	0	0
TOTAL	26.85	-	-	0	-	-	-	.1	0	0
AVERAGE	2.24	3.0	-	0	4.9	-	2.23*	.1	0	0

* Six month data

COMMENTS

A total of 268,000 gallons of raw sludge was pumped to the digester for a further breakdown of organic solids. The raw sludge had an average total solids concentration of three percent.

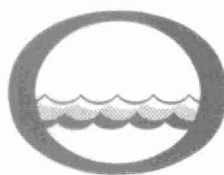


CONCLUSIONS

The flow reaching the plant is still well in excess of the design flow, and efforts should be made to find this obvious infiltration.

Date Due

COPY #1



Water management in Ontario